RESEARCH FIRST

Toi Mai Workforce Development Council

TRANSFERABLE SKILLS RESEARCH

Research report | April 2023

Contents

Executive summary

The topic of transferable skills in a global context, as well as in the context of New Zealand, was explored for the purpose of this study. The key takeaways are as follows:

- The factors impacting the workforce globally, namely, increased digitisation, changing demographics, great resignation and skill shortage, were found to impact the New Zealand job market as well. Their impact has been exacerbated by COVID-19 and has widened the skill gap. The unpredictable nature of work has resulted in employers expecting the workforce to be more adaptable, resilient and innovative than ever before. The collective term used for these skills is "transferable skills".
- Literature suggests that transferable skills have gained significance as an essential employability skill in the event of changing demands of jobs, especially post COVID-19.
- The current paper discusses these trends and how transferable skills can help in coping with the impact of these trends on the job market, particularly in the key areas – culture, creative, recreation and technology sector in New Zealand.
- ***The transferable skills that are required across all four sectors are:***
  - communication skills
  - problem solving and critical thinking
  - team work and project management skills
  - being creative and innovative.
- Research shows that the skills are transferable to other contexts, with an easy transition to similar contexts than to completely different environments.
- The paper discusses the importance of learning these skills for the Māori population in New Zealand, keeping in mind their current employment profile and the future strategy to uplift their employability. Currently, Māori suffer more unemployment and are mostly in low-skilled and consequently low-paying jobs. Imparting transferable skills to them can tap their potential while improving their employment status.
- Currently there are no stand-alone qualifications in New Zealand for imparting these skills. These skills can, however, be developed through deliberate instruction and practice.
- Literature suggests three methods for delivering these skills, namely, the embedded, the stand-alone and the integrated approaches, as proposed by researchers world-wide. All of them, however, suffer from some limitation. The findings of this research point towards adoption of an integrated approach as the most effective way of delivering transferable skills to New Zealand's prospective workforce.

- A successful delivery of transferable skills depends on various factors, the major ones being:
    - the context of teaching
    - design and implementation
    - participation of learners and their motivation
    - stage of learning
    - resources available.
- Various frameworks were proposed for assessing transferable skills in students. The popular ones are:
    - **Programme for International Student Assessment (PISA)** framework by OECD
    - **Skills Builder Framework** by the UK government
    - **Core Skills for Work Developmental Framework** by the Australian government.
    - **The Association of American Colleges and Universities (AAC&U) VALUE Rubrics.**

Introduction

"The issues are global and the solutions transferable".

Only a small fraction of the graduates utilises the academic knowledge they acquire through their higher education curriculum. In the era of businesses spreading across the globe, the employees being forced to work from home post Covid and an ever-increasing competition to secure employment, education providers have realised the importance of imparting transferable skills to their learners. The changing dynamics have forced institutions of learning (particularly in higher education) to reflect on the skills being imparted through their curriculums and if they suffice the needs of the current job market. Bennett et al. (2000) discussed in their research how occupational competence has replaced academic competence in building a job-ready workforce. The academic communities, however, see less significance in these skills and often term them as soft skills (Bridges, 1993).

This paper stems from the need to understand what transferable skills are, the importance of developing these skills amongst the potential workforce in the context of New Zealand, and how they can be imparted effectively.

Research method

The current research reviews literature on the significance of incorporating transferable skills to the curriculum. It discusses the different methodologies adopted and researched globally for delivering these skills, their implementation in various contexts, and their pros and cons. The importance of cultural adaptability, the influence culture has on imbibing the transferable skills, and their usefulness within the creative, culture, recreation and technology sector in New Zealand are discussed thereafter.

Trends in workforce

Deloitte's 2016 Global Human Capital Trends report through its research in 130 countries reveals that the following forces have changed the workspaces:

A. DIGITISATION

The onset of a digital economy is seen by many as a harbinger of new opportunities, whereas others think that it will destroy more jobs than it can create. There's an emergence of a new kind of businesses, such as Uber, Airbnb and others that have disrupted the old ways of working, all of which was facilitated by new digital services. The move is on from being industrialised to being digitised with new forms of organisations and skills that serve these organisations. Uber, which has disrupted the transport system globally, is a successful example of this transition. Some are even referring to digitisation as 'uberisation' of the economy. E-commerce is another area that has witnessed an uptrend post COVID-19 and has thus increased the adoption of fully digitised approaches in the businesses (McKinsey & Company, 2020).

In a report by World Bank, the authors have explored how technology has changed the labour market and enabled it to be more inclusive, innovative, flexible and transparent. Digital technology has disrupted business models and brought about a radical change in the way work is done (Deloite, 2016). It has enabled one to call the shots in choosing when and where they work.

However, with it comes the need to be able to adapt to new technology. The technology is changing constantly, and you are no longer tested just on your technical know-how but other personal skills as well. One of them is your **adaptability to technology**. This is yet another transferable skill.

B. WORLD POST COVID

COVID-19 has impacted the work landscape in many ways. The pandemic has, in a way, expedited the shift, which was already underway, to a more digitally skilled, adaptive, flexible workforce and work environment. While on one hand Covid has made the workforce more vulnerable, on the other it has made it more resilient. McKinsey & Company (2020) in their report titled 'To emerge stronger from the COVID-19 crisis, companies should start reskilling their workforces now' emphasises that organisations need to develop digital and cognitive skills in the employees to meet the challenges posed by the pandemic. This would prepare them for any disruption in future.

C. THE GREAT RESIGNATION

Also known as the “Big Quit” and the “Great Reshuffle”, it’s an ongoing trend that started post Covid and has seen the employees voluntarily quitting their jobs. The gap it has created between the demand and supply of skills has left some seeing this as a great opportunity for upskilling.

D. SKILL SHORTAGE

The shortage of skills that’s often discussed is not just technical skill shortage but also other skills that make one more employable. These are again transferable skills.

E. THE CHANGING DEMOGRAPHICS

There’s a risk of labour shortage when the workforce retires and that of a decline in productivity, both of which are consequences of aging population, as observed globally. The world-wide trend has exacerbated the problem caused by unskilled workers and the mismatch between the demand and supply of labour (Managing demographic risks, HBR, 2008).

Employability and transferable skills

Employability was defined by Yorke (2006) as "a set of achievements – skills, understanding and personal attributes – that makes one more likely to be employed and be successful in their chosen occupation". Employability has, however, changed its meaning over the years. Post globalisation in 1990s, it has increasingly been associated with work readiness. It has now become imperative for the graduates to offer an employer more than academic skills, traditionally represented by the subject and degree class. In the wake of changing landscape, several models of employability were proposed by researchers. The USEM model proposed by Yorke and Knight, 2004, is the most well-known amongst all. The model proposes the following four pillars of employability: (1) understanding; (2) skills; (3) efficacy beliefs; and (4) metacognition. The governments, industries, higher education agencies and researchers have been emphasizing the need to incorporate transferable skills into the students' learning experience (Mason et al 2003). It is these transferable skills that make the adult learners in schools and colleges job ready. Researchers, such as Harvey et al., 1997, Bennett et al., 1999, Yorke and knight, 2002, have all emphasised on developing transferable skills in graduates which can be applied in different contexts and hence make them more employable.

A study by the Organisation for Economic Cooperation and Development (OECD) found that students who were taught skills, such as problem-solving, critical thinking and communication, performed better academically and had better career outcomes than those who were not taught these skills.

There have been several studies in Australia that confirm that transferable skills are important for employability. Here are some key findings:

A study by the Australian Council for Educational Research found that work-integrated learning experiences, which help students develop transferable skills, such as communication, teamwork and problem-solving, are positively associated with employability outcomes, such as graduate employment rates and job satisfaction.

The Australian Bureau of Statistics found that employers in Australia value transferable skills such as communication, teamwork and problem-solving more than technical skills, and that employees with higher levels of transferable skills are more likely to be employed and to earn higher wages.

In a study by the National Centre for Vocational Education Research it was found that vocational education and training (VET) programmes in Australia that focus on developing transferable skills are more effective in improving graduates' employability outcomes than programmes that focus solely on technical skills.

The Australian universities, such as the University of South Australia, the University of Sydney and the University of Melbourne, also found a high positive correlation between graduate employability and the transferable skills they developed through their studies.

Overall, these studies suggest that transferable skills are important for employability outcomes in Australia and that students who develop these skills through work-integrated learning experiences or vocational education and training programmes are more likely to be successful in the labour market.

What are transferable skills?

Transferable skills are "portable skills" that can be transferred across different social, cultural or work settings. They include cognitive, social and emotional skills, and they work alongside other skills such as those specific to a job.

These skills are central to occupational competence in all sectors and at all levels (DfEE, 1997). These include skills of project management, leadership, communication, working in teams and problem solving.

UNICEF Global framework on transferable skills has identified twelve such skills and the four dimensions of learning that these transferable skills are based on (Figure 1).

The four dimensions are: social, cognitive, instrumental and individual.

The skills that ascribe to the **cognitive dimension** are those that develop one's innovative side and critical thinking. The **instrumental dimension** refers to your ability to make decisions, negotiate well and cooperate. The **individual dimension** engulfs skills that make one personable, such as communication skills, personal conduct and your resilience as a worker. How you operate in a team, whether you empathise with others at work and respect their heritage, are all products of your **social skills**.

It is important to take note of the inter-connection between these four dimensions and the skills thereby, as they work in tandem with each other. One needs to be therefore aware of and trained on developing all of these as they reinforce each other.

Figure 1: The twelve transferable skills and the four dimensions

Source: The 12 Transferable Skills from UNICEF's Conceptual and Programmatic Framework, UNICEF (2022)

Taxonomies for transferable skills

Governments across the globe have come up with their own classification of transferable skills as relevant and required in their specific context. Some of the widely acknowledged taxonomies for transferable skills are as follows:

1. **SCANS Skills:** The Secretary's Commission on Achieving Necessary Skills (SCANS) has identified five competencies that are necessary for individuals to succeed. These include communication skills, reasoning, interpersonal skills, information and systems.
2. **Essential Skills**: These include nine essential skills identified by Canada as important to be successful in the workplace. These include reading, writing, numeracy, oral communication, document use, computer use, thinking, working with others and continuous learning.
3. **Career Clusters:** The National Career Clusters Framework has identified 16 career clusters. Each of these clusters includes a set of foundational skills and industry specific technical skills.
4. **Employability Skills:** The British Columbia Ministry of education has identified eight employability skills which are critical to succeed at work. These are communication, teamwork, problem solving, initiative, planning and organizing, self-management, learning and technology.

The above listed taxonomies offer a base on which individuals and organisations can identify and develop skills applicable in their contexts and deemed as important skills.

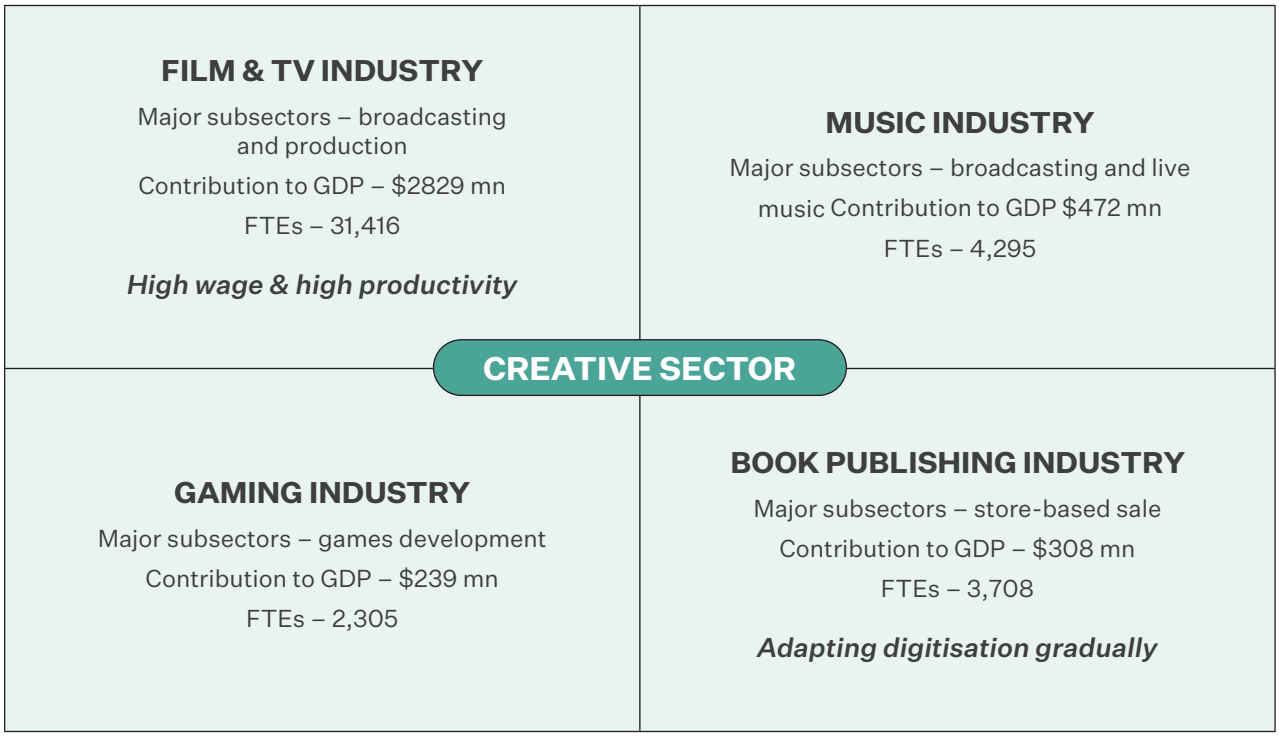
Transferable skills for the key sectors (CCRT)

CULTURE & CREATIVE SECTOR:

New Zealand's creative sector contributes $3.5 billion to NZ's GDP and employs about 41,000 people in its four major creative industries, namely, books, music, film and television and games (PWC, 2015).

The creative sector with its deep-rooted connection with history, culture and traditions, is viewed as a driver of more inclusive, sustainable and meaningful development (Bokova, 2013). The figure below shows the subsectors that fall under New Zealand's creative industry.

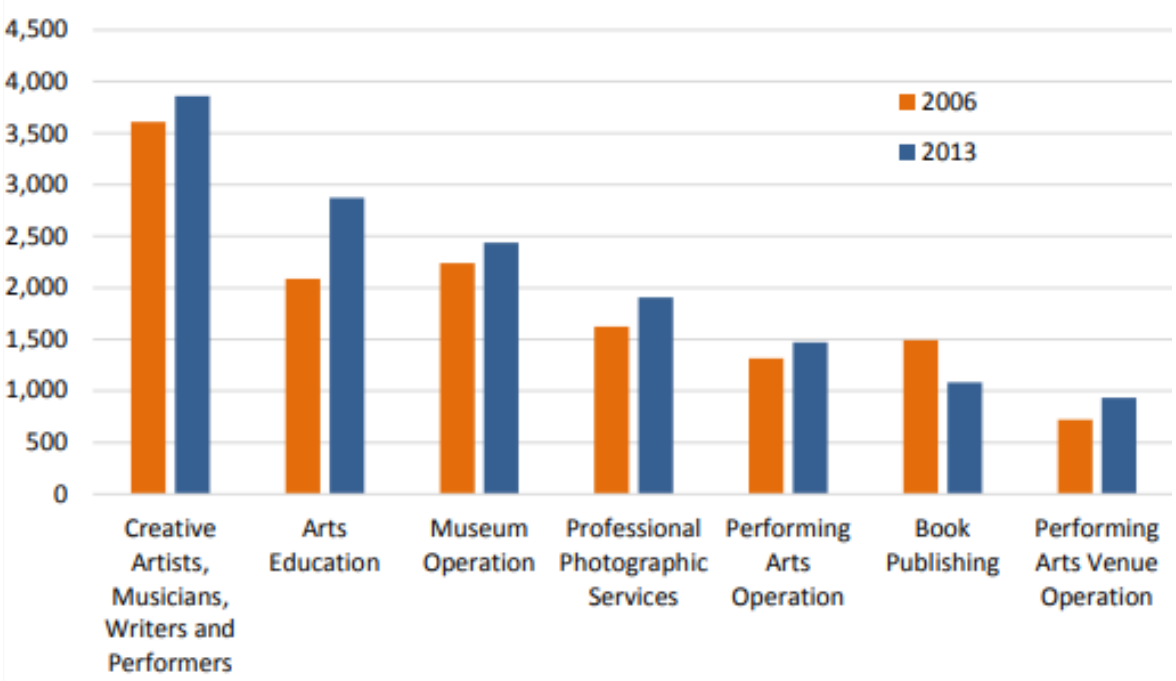
Figure 2: Creative sector



Source: PwC-FINAL-Summary-Creative-Sector-Report-25-September-2015

The largest groups within the creative sector in NZ are sculptors, painters and related artists, and singing and music teachers (figure 4).

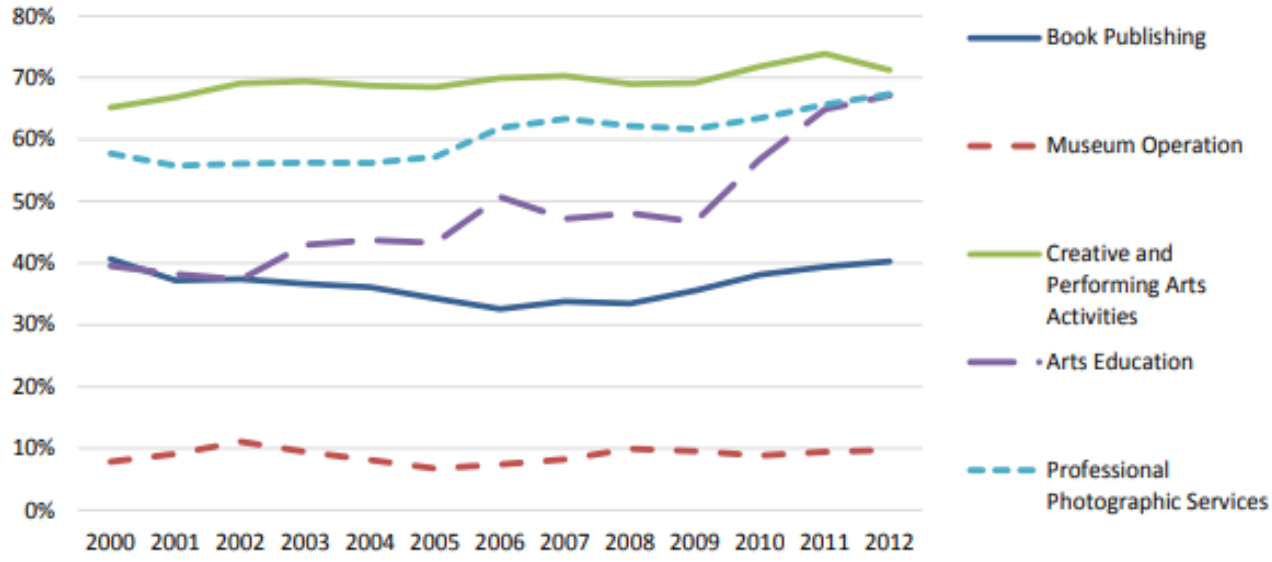
Figure 3: Employment in arts-related occupation (2006 & 2013)



Source: 2006 and 2013 Censuses of Population and Dwellings, Statistics New Zealand (Excludes film industry)

Over 70 percent of the workforce in creative and performing arts is self-employed (Statistics New Zealand, 2012), followed by professional photographic services at 67% (figure 5). More self-employment in the creative industry brings challenges with it. As a result, the workforce needs to use many transferable skills such as project management, inter-personal skills, teamwork, and some specialised skills such as accounting, marketing and promotion.

Figure 4: Proportion of self-employment



Source: Integrated Data Infrastructure, Statistics New Zealand

RECREATION:

Sports as a field is well known to develop several transferable skills (Goudas et al., 2005; Allen et al., 2015; Sebri et al., 2019). It promotes the development of all four dimensions – social, cognitive, instrumental and social – by imparting skills such as decision making, problem solving, and managing one's emotions and self-perception (Mann et al., 2007; Pesce et al., 2009; Pesce et al., 2013).

Sports and recreation as a sector contributes 2.3 percent to NZ's GDP and employs more than 53,000 New Zealanders (Sport NZ). Therefore, it becomes even more important to understand what skills would make one more useful in this sector.

The key transferable skills that one mainly needs in and develops through sports are:

- teamwork: sport requires teamwork and the ability to put others before yourself. It teaches how to co-exist with the teammates.
- communication skills: communication skills would help you convey your ideas to the coach, trainer and others involved in the teamwork.
- critical thinking and decision making: being able to think clear and solve problems along with making fast decisions are important for a career in sports.
- time management: sports also require individuals to multi-task and meet deadlines.
- resilience and adaptability: the most important transferable skill that sportspeople develop is their ability to withstand pressure and the demands of their profession and the ability to bounce back.

Transferable skills are important for players not just while they are playing but also post-retirement. In an interesting paper titled "Life after sport: Athletic career transition and transferable skills", the authors have discussed how transitioning out of sport is inevitable for all athletes (Zaickowsky, Kane, Banne &Hawkins, 1993). Many athletes feel disillusioned when they retire, as they fail to see how their learnings can be applied in the outside world (Pearson & Petitpas, 1990). However, they can benefit immensely from the skills that they have acquired through sports and can apply them to non-sports career (Mayocchi & Hanrahan, 2000). Researchers have called them athletic transferable skills, which include skills such as tenacity, organisational skills, problem solving and others. Discussing the barriers in successful transition, Danish et al., 1993 and Mayocchi & Hanrahan (2000) have emphasised the need to increase awareness of these skills amongst the athletes and the role they can affect adjustment in other careers.

TECHNOLOGY:

New Zealand's technology sector contributes significantly to the economy. With 23,229 companies in technology, it employs 111,760 New Zealanders, i.e., 5% of the NZ workforce. (Statistics NZ 2021). The sector contributes 8% to GDP (NZ Tech Digital nation Report, 2016). NZ's Tech sector is the second largest export sector that made up for 10% of the total exports in 2020, registering a growth of 10.8% between 2019 and 2020 (Statistics NZ, 2021).

In research done in Spain with a sample of 43 companies operating in ICT (Information and Communication Technology) titled 'The ICT skills gap in Spain: Industry expectations versus university preparation', it was established that there's a gap in the skillset required by the employers versus those developed by the learners in the ICT streams in universities. The most valued skills included teamwork, problem solving and commitment to learning, whereas the least valued ones were negotiation and leadership skills and empowerment (Llorens et. Al., 2013)

The key transferable skills required in the technology sector are:

- time management: quick turnarounds and being able to meet deadlines are crucial skills required in this sector.
- resilience: jobs in this area are high pressure and thus require one to be resilient to withstand.
- adaptability: this means being able to adapt to different working environments and projects. This is particularly important as most of the IT jobs in New Zealand are contracted.
- critical thinking and problem solving: with a lot of internationals working in this sector, the ability to solve problems to navigate through the challenges is seen as a key skill.
- project management: being able to understand the requirements of the projects and ensuring all steps are completed well within the stipulated time frame are key to successful completion of IT projects.

Skills transferable within CCRT sectors

Researchers feel that skill-transferability is easy when done in similar contexts but can be difficult in contexts which are very different from the original context where they were acquired. In a study in Australia that investigated the importance of cross-occupational skill transferability in the event of changing economy and an industrial restructuring, it was concluded that "Occupational clusters", i.e., occupations across industries with common skills, knowledge and tasks facilitate skill transferability more than occupations which have less of these attributes in common (Darryn Snell, Victor Gekara & Krystle Gatt, 2016). The process can however be smoothened through training (Gould and Carson, 2008).

Regardless, one must be aware of these skills and the possibility of transferring them to use them in varying contexts (Petipas et al., 2005).

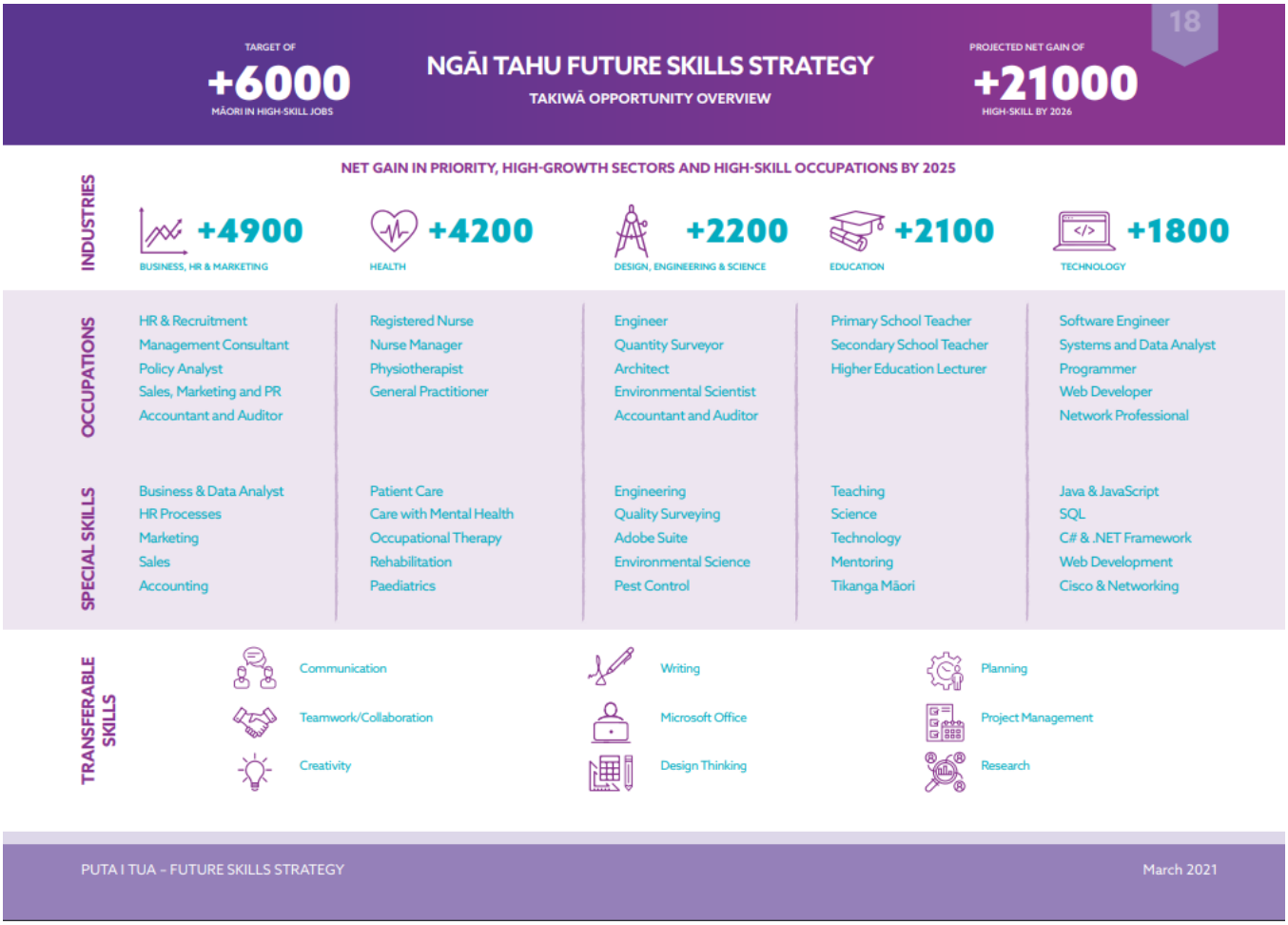
Literature suggests that skill transfer takes place through both implicit and explicit processes (Sackett and Gano-Overway, 2017). While implicit transfer takes place unintentionally, it requires an external impetus to promote the latter. Research conducted in Italy on the role of sports as a vehicle of skill transferability suggests strategies that could be adopted to facilitate the process. These include techniques like team imagery sessions – where players are asked to imagine real life situations where these skills can be applied – and others that focus on improving comprehension, confidence and reinforcement in transfer (Valerie et.al, 2020).

Māori and transferable skills

Māori who account for 16.7% of the NZ population (aged 15–64) also witness twice the unemployment rate than that observed in Pākehā in New Zealand. A report by Tokona te Raki emphasises the need to shift the focus from getting qualified to acquiring skills that make you employable. The need is even more urgent in the Māori workforce, which is growing at a faster rate than the non-Māori workforce in New Zealand. Only 8.4% of the Māori workforce is in well-paid jobs.

As a part of the employment strategy, the Ministry for Social Development has formulated an action plan that aims at assisting the Māori workforce find quality work. The strategy focuses on responding to the changing nature of work. Figure 6 gives an overview of the goals and strategies as part of the Puta i Tua future skill strategy.

Figure 6: Puta i Tua Future Skill Strategy – opportunity overview



Source: www.maorifutures.co.nz

The Puta i Tua strategy is a future skill blueprint that aims at building a more equitable Aotearoa with more Māori being in well-paid employment. It points at a systemic bias observed in the system which has resulted in the Māori population dropping out of schools early and eventually landing in low-skilled jobs.

The way to change this is to re-orient Māori pathways towards future-focused careers that pay better, offer opportunities for progression, and protect our whānau from future recessions. The aim is to have 20 percent of the Māori working age in employment in twenty years. To achieve equity, there would need to be 11,000 more Māori in design, engineering and science, 12,700 more in technology, 12,900 more in health, 16,500 more in business and marketing, and 16,800 more Māori in management than is currently projected.

The report stresses the need to impart transferable skills to build future skills that can facilitate and fasten the transition to a more equitable nation.

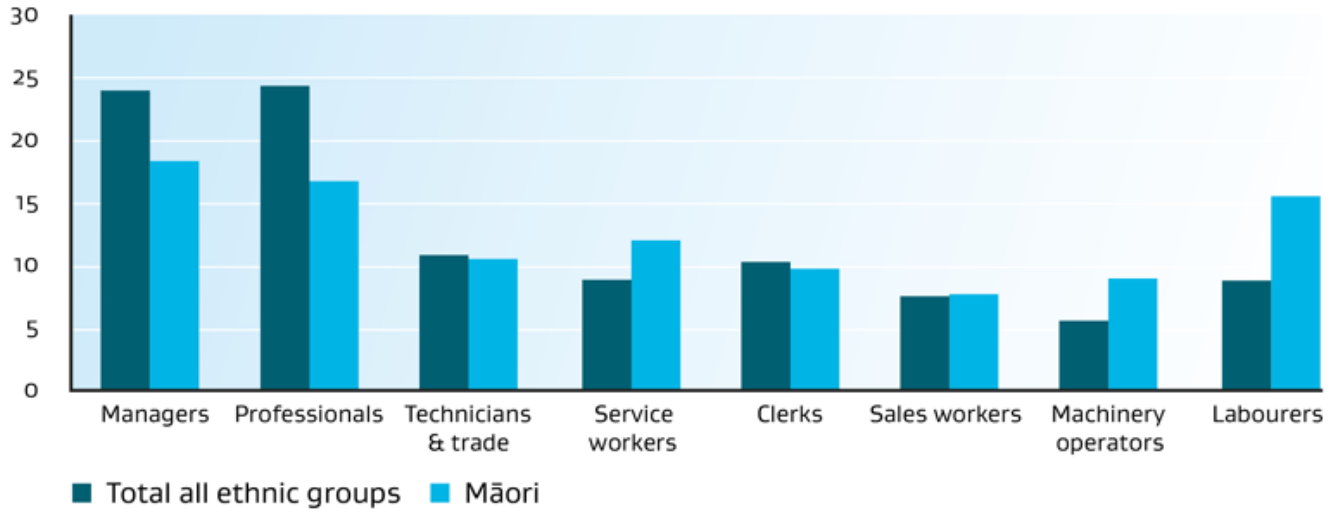
The latest data from Stats NZ reveals that the top industries employing Māori workforce are retail and accommodation, utilities, and construction and manufacturing. These are also the top employers for the entire workforce taken together. However, a higher proportion of Māori are employed in manufacturing and construction when compared to the proportion employed of the entire workforce base (Figure 6). Also, compared to that for the whole base, a higher proportion of Māori workforce works as service workers, machine operators and labourers (Figure 7).

The median weekly income for Māori was also reportedly less than that for all ethnic groups (Figure 8). The data supports the claim that there's a need to uplift Māori workforce in their skillset to bridge the gap between them and others.

Figure 7: Proportion of Māori and all ethnicities employed in industries, September 2021

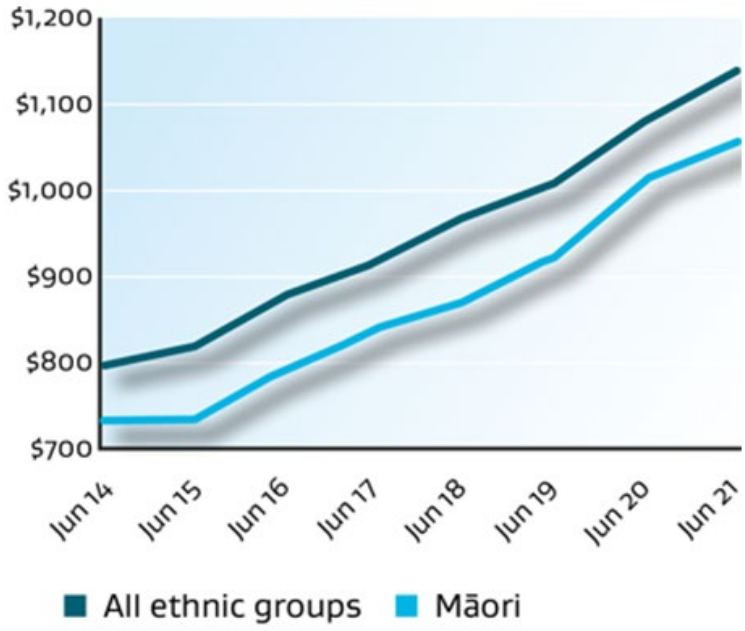
Source: Data from the Integrated Data Infrastructure (IDI), Stats NZ, September 2021.

Figure 8: Proportion of Māori and all peoples employed by occupation*, September 2021



Source: Data from the Integrated Data Infrastructure (IDI), Stats NZ, September 2021.

Figure 9: Median Income for Māori & all ethnic groups



Source: Income Survey adjusted by the Consumer Price Index, StatsNZ, June 2021

The role of culture in skill development

Literature suggests that culture plays an important role in individuals picking up certain skills faster than others. A study on the indigenous people of Canada revealed that learning is linked to students' lives and experiences. Therefore, designing course curriculums and experiences that have connections to culture is important to enable learning at a multi-layered level. 'One size fits all' is no longer seen as a successful strategy to achieve progression for all communities.

Māori are innately entrepreneurial and love to wear multiple hats. They are driven more by purpose than by profit and stay connected to their roots (Ringa Hora Services WDC, 2022). Through work they like to express their identity and culture. In the traditional Māori society, sports and games played a very important part.

The Puta i Tua future skills strategy suggests providing Māori people with culturally responsive learning experiences that would help them realise their full potential. It's crucial to recognise their existing skills and experience and train them to fill up the skill gap for Māori changing career.

Standards and qualifications for transferable skills in New Zealand

One of the most popular job portals in New Zealand, TradeMe Jobs, has listed the top skills the employers are currently looking for. These include skills of adaptability, creativity, persuasion and problem solving, that one can port from one work situation to another. The growth of vocational courses has increased the burden on the institutes as the stakeholders are now expecting them to deliver a more employable product (Bowers-Brown and Harvey 2004; Wilton 2011, De La Harpe, Radloff, and Wyber 2000; Heaton, McCracken, and Harrison 2008). Whether the onus to develop the transferable skills or personal attributes, as they are called interchangeably, rests on academic institutes, is a subject that's found less agreement for long.

Many academicians believe that employability is better developed outside of the formal curriculum (Andrews and Higson 2008; Ng and Feldman 2009; Rae 2007; Yorke 2004). There are others that object to the philosophy of shifting from an intellectual discovery to a more instrumental approach being adopted by educational institutes (Massingham and Herrington 2006).

Having acknowledged the significance of transferable skills for graduates, University of Auckland has categorised all skills as: a) specialised skills – those which are gained by studying subjects or working in areas, and b) transferable skills – those developed through wide range of experiences, such as problem solving skills, teamwork and interpersonal skills.

To impart these skills, some institutes of higher learning have embedded them into the core subjects, through group-based projects, presentations and other similar methods. New Zealand Universities (University of Auckland being one of them) organise career workshops by employing career development and employability consultants. These are some of the other ways in which the students are being helped to acquire these skills alongside learning the core subject.

However, there are no stand-alone courses that only impart transferable skills in New Zealand universities or institutes of higher education. In an experiment with a sample of 323 students from different streams of arts, engineering or science in Australia, it was found that there's limited evidence to suggest that skills increased with a progression in studies. Also, students' performance in their core discipline was found to be imperfectly related with their generic skill attainment (Harris & Huisman, 2018).

Research thus suggests that there's a need for stand-alone courses/ qualifications that impart transferable skills, where these skills are taught explicitly and the learners are aware of their value.

Can transferable skills be developed?

Research suggests that transferable skills can be developed through deliberate instruction and practice. The key findings are as below:

A meta-analysis of 58 studies on transferable skills development found that interventions designed to improve transferable skills were effective in producing improvements in those skills, as well as in academic and occupational outcomes. Bell and colleagues (2016) found that a career development intervention programme enhanced the employability skills of undergraduate students in the UK. The programme targeted both core skills, such as communication and problem-solving skills and social-emotional skills, such as emotional intelligence and interpersonal skills. Similarly, Rothwell et al. (2016) through his research with a sample of business students in Australia highlighted the potential of work-integrated learning programmes (WIL) in enabling students to develop transferable skills which can then be applied to new tasks and contexts. These studies used a quasi-experimental design, comparing the outcomes of students who participated in the programme with those who did not.

In two separate studies by Garavalia et al. (2019) and Korkmaz (2017), it was concluded that through a structured, multi-component intervention programme students can develop transferable skills which can improve their confidence and self-perceived skills. Whereas the former studied the effectiveness of such programmes on graduate students pursuing PhD in STEM (science, technology, engineering and mathematics), the latter was done with the university students in Turkey from various streams.

A longitudinal study by the Australian Council for Educational Research found that students who participated in work-integrated learning experiences were more likely to develop transferable skills, such as communication, teamwork and problem-solving, than those who did not participate in such experiences.

A study by the UK Commission for Employment and Skills found that those who received training in transferable skills, such as communication, problem-solving and teamwork, were more productive and had higher job satisfaction than those who did not receive such training (UKES Employer Skills Survey 2015).

Overall, these studies suggest that transferable skills can be developed through targeted instruction and practice, and that such skills are important for both academic and career success. However, the specific design and implementation of these programmes may be critical to their effectiveness.

Delivering transferable skills

Yet another highly active area of research in training is how to ensure an effective transfer of training. Blume et al. (2010) found that there are several factors affecting the transfer of training, the most important one being the trainee's characteristics or cognitive ability. The receiver's conscientiousness and voluntary participation are some of the other crucial factors.

A study was done with 400 business students in the UK that investigated students' perspective on employability. It revealed that the views of various stakeholders were less aligned. There was a difference in the perspectives of first- and second-year students and those in final year, with those in final year being more engaged in employability efforts (Alex Tymon, 2013).

Imparting transferable skills by incorporating them in the curriculum is an area that needs to be explored.

Learning models as relevant to imparting transferable skills

Various models of learning have been proposed by researchers. Some of these are relevant to the development of transferable skills. The major ones are listed below.

A. The experiential learning model:

Originally proposed by David Kolb in 1984, this model involves providing students with hands-on learning experiences, through internships, work placements, or volunteering opportunities that are grounded in real-world contexts.

By engaging learners in active, immersive and reflective experiences, this approach allows students to acquire and apply the skills they have learned in the classroom to real-world situations, and helps to develop communication, teamwork, problem-solving and leadership skills.

B. Inquiry-based learning model:

Proposed by various educators and researchers, this approach focuses on encouraging students to ask questions, explore topics and find solutions to problems. Students are encouraged to work independently and to use a range of resources and tools to help them find answers to their questions.

The method helps learners to develop critical thinking, research and problem-solving skills.

C. **The self-directed learning model (SDL):**
Proposed by Malcolm Knowles, an American educator and adult learning expert, this method involves giving students responsibility for their own learning and allowing them to set their own goals and objectives.
The approach helps to develop self-motivation, self-discipline and self-awareness skills, all of which are important transferable skills.

D. **The problem-based learning model (PBL):**
Proposed by Howard Barrows and his colleagues at the medical school at McMaster University of Canada, this method involves presenting students with an ill-structured real-world problem or case study. The students identify the key issues and develop a plan to solve them and evaluate the effectiveness of their solutions. The method requires them to use a range of skills, such as critical thinking, problem-solving, communication and collaboration.
The approach helps students to develop their ability to apply transferable skills in a variety of contexts.

E. **The project-based learning model:**
This model involves students working on projects that require them to use a range of skills, such as research, analysis, communication and teamwork.
The approach allows students to apply these transferable skills to real-world problems and to develop their ability to work collaboratively and effectively with others.

F. **The collaborative learning model:**
This model involves students working together in groups to achieve a common goal. The model operates on a premise that learning is a social process that occurs through interactions with others and learners achieve higher levels of understanding through collaboration and dialogue with peers than when they work independently.
The approach helps to develop communication, teamwork, leadership, and problem-solving skills. The collaborative method can also help learners develop a sense of social responsibility and empathy, all of which are important skills.

These models are not completely distinct from one another and there's an overlap in the delivery method as well as the outcomes achieved.

Overall, these models provide different ways to transfer skills and help students develop competencies that can be applied across different contexts and environments.

Chadha (2006) in her paper 'A curriculum development for transferable skills development' states that the main issues with imparting these skills are recognising the value of skills and developing a methodology for an effective delivery.

Through her research, she's proposed three different approaches that can be incorporated in the curriculum to develop these skills (examples shown in Table 1).

A. THE EMBEDDING APPROACH:

In this approach the skills are embedded within the core discipline, rather than teaching them separately, or making any direct reference to them. The objective is to provide opportunities for learners to practice and develop these skills in realistic and relevant contexts.

Some of the common examples of the embedded approach are:

- **project based learning:** this involves working on group projects as a team and is a powerful technique that helps one work effectively in a team.
- **cross-functional teams:** this involves working in teams from other areas of expertise or departments.
- **service learning:** here the students are encouraged to engage in community service or volunteer work. This helps them develop skills such as empathy, communication and leadership amongst others.
- **simulation-based learning:** this approach involves creating simulations of real-world situations enabling students to practice skills such as decision making and problem solving.
- **internships:** working in the industry alongside professionals as interns facilitate developing transferable skills.

This approach is largely used with learners in technical streams with more emphasis given on technical know-how. Alistair Clark, 2011, in his primary research with the students in the UK showed that embedding transferable skills into the main programme can enhance the learning experience of the students and develop in them skills that would likely be of use in future employment. The participants said that they enjoyed working in group projects and welcomed the concept of taking the course outside the confines of the classroom.

A study by the Higher Education Academy in the UK titled 'Embedding and Integrating Employability' found that embedding transferable skills in the curriculum could improve student engagement and motivation. They were observed to articulate their skills and strengths better to the prospective employers. The authors, however, also stressed the need for collaboration and communication among various stakeholders for its successful execution (Cooper and Orrell, 2010).

At the University of Waterloo, a study was done with the engineering students in 2010. The study analysed the impact of embedding a communication skill course in the engineering curriculum. The authors found that the technique proved effective in improving students' communication skills who saw value in these skills and found them relevant to their future career (Bauer & Bennett 2010, p. 541).

In an experiment done with the undergraduate students in physics, it was found that embedding oral communication training in the curriculum improved their skills in communication. Their skills were found to be above those in the control group, who did not receive the communication training (Prestridge et al. 2014).

In a qualitative study investigating the effectiveness of the embedding approach in imparting skills, the survey responses of faculty members from three universities were analysed. The results revealed that the success of the embedded method is reliant on the level of support provided to the instructors and students, the lack of which can result in a failure (Elliott & Higgins, 2014).

Though the embedded approach is relatively straightforward and is largely practiced due to its many intrinsic advantages, some researchers found it less effective than other methodologies due to a lack of explicit awareness (Drummond et al., 1998).

B. THE BOLTING-ON/STAND-ALONE APPROACH:

This method involves teaching the transferableskills as a stand-alone course, independent of the core discipline, not integrated into the curriculum. Separate training or learning experiences are provided that specifically focus on developing these skills.

Some of the common examples of the bolting-on/stand-alone approach are:

- **student development programmes:** this involves programmes specifically designed by the education providers to impart transferableskills.
- **online courses:** in this method, online courses or modules focused on transferableskills and that can be completed independently by learners are imparted by universities.
- **coaching and mentoring programmes** are also an example of this approach.

There are many studies conducted on the effectiveness of bolt-on approach in delivering transferableskills. However, the results have been mixed. This approach makes the value of skills development explicit, and in a modular framework it allows students to involve themselves in a more varied learning experience (Drummond et al.1998). And even though in a study by Keele university and Higher Education Academy (2010), the bolt-on approach was found to increase the confidence of the learners and resulted in a higher satisfaction, the Association of Graduate recruiters in the UK viewed the bolt-on courses in transferableskills as less valuable than those integrated into the primary curriculum.

The inability of the students to grasp the academic value of this methodology was seen as a limitation that the bolt-on approach suffers from (Chadha, 2006).

One of the biggest challenges of the stand-alone approach is that the courses offered are often resource-intensive and may not be feasible to implement in all contexts.

C. THE INTEGRATED APPROACH:

This is a combination approach where transferable skills are developed and taught within the core discipline but explicitly and with an equal emphasis as that given to the core discipline.

Some of the common examples of the integrated approach are:

This mixed approach uses methods such as team-based projects, internships and writing intensive exercises, which are integrated into the core discipline. Where they differ from the other two approaches is that there's an equal emphasis on developing the core subject skills as well as the transferable skills.

Here the students are assessed on both their core subject knowledge and transferable skills.

The methods emerge from recognising the fact that both types of skills – soft skills as well as core subject skills – are equally important.

There have been several studies on how successful it was integrating transferable skills into the core discipline. Mixed results were observed again.

Cottrell (2001) has established in his research that the integrated approach being more reflective of real-life applications is more effective in higher education than the other two.

Higgs and McCarthy (2013) found that integrating transferable skills into the curriculum of an undergraduate nursing programme improved students' ability to apply these skills in clinical settings. In another study by Li and Li (2017), it was concluded that integrating critical thinking skills into the curriculum of a business school improved critical thinking ability among students.

In another study by Winkelmes (2016) titled 'A teaching intervention that increases underserved college students' success', it was found that intervention through an integrated approach in the context of writing assignments helped these students improve their critical thinking, problem solving and self-regulating learning skills.

However, there were studies that showed that integrating these skills into the core discipline can be challenging and may not always give the desired outcome.

In a study done by Lunt and Curran (2010) discussing the benefits of integrating transferable skills into the science curriculum, the authors concluded that the integrated approach had little impact on students' ability to apply the transferable skills in the workplace.

In a review of literature on transferable skills in higher education, the authors have concluded by saying that the integrated approach has found greater support when delivered by the core subject teacher (Atlay and Harris, 2000).

We can conclude by saying that there is evidence suggesting that the integrated method has been successful in some cases but may not always lead to improved outcomes.

Table 1: Examples of the three teaching strategies for transferable skills

S.No.	Teaching strategy	Examples of delivery
1	Embedded	Group based projects done in teams
2	Bolted-on	Presentations on non-technical topics
3	Integrated	Student-led workshops on core discipline topic, assessing students both on technical knowledge and transferable skills

Source: A curriculum model for transferable skills development, Engineering Education, 1:1, 19-24, DOI: 10.11120/ened.2006.01010019

Imparting transferable skills in Australia and the UK

The Australian government and that in the UK have made attempts to impart transferableskills to the students. An investigation on the same reveals the following:

Australia:

The Australian government has identified a set of "Foundation Skills" that are essential for success in the workplace and in further education and training. These skills include communication, literacy, numeracy, problem-solving and digital literacy.

Research has shown that project-based learning, work-integrated learning and the use of technology can be effective ways to develop transferable skills in Australian students.

A study by the Australian Council for Educational Research found that students who engaged in work-integrated learning had better employability outcomes, including higher rates of employment and higher starting salaries.

The UK:

The UK government has identified a set of "Core Skills" that are essential for success in the workplace and in further education and training. These skills include communication, literacy, numeracy, problem-solving and digital literacy.

Research has shown that collaborative learning, problem-based learning and the use of technology can be effective ways to develop transferable skills in UK students.

A study by the UK Commission for Employment and Skills found that employers value transferableskills, such as communication, teamwork and problem-solving, and that these skills are important for career success.

Overall, both Australia and the UK have recognized the importance of transferableskills for students' future success and have implemented various strategies to develop these skills in their educational systems. Research has shown that a range of teaching models and approaches can be effective in imparting transferableskills in students in these countries.

To understand the effectiveness of methods proposed by researchers for imparting transferableskills, research was conducted. The findings are as below:

A study by the University of Cambridge found that an integrated approach to teaching transferable skills, such as critical thinking and problem-solving, was more effective than a stand-alone approach. The integrated approach involved teaching these skills in the context of subject-specific content, while the stand-alone approach involved teaching these skills as a separate course (Smith et al. 2015).

A study by the University of Melbourne found that embedding employability skills in a core engineering course, rather than providing separate courses or workshops on these skills, was more effective in developing students' skills and improving their academic outcomes (Dawson et al. 2013).

A 2015 study by the Organisation for Economic Cooperation and Development (OECD) found that an integrated approach to teaching and assessing transferable skills, such as creativity, critical thinking and problem-solving, was more effective than a non-integrated approach. The integrated approach involved incorporating these skills into subject-specific content and assessing them in the context of that content.

A study by the Australian Council for Educational Research found that work-integrated learning, which involves embedding transferable skills development in workplace experiences, was more effective than classroom-based learning in developing these skills (Green et al. 2010).

Overall, these studies suggest that embedding or integrating transferable skills development in the curriculum, rather than providing stand-alone courses or workshops on these skills, can be more effective in developing students' skills and improving their academic and career outcomes.

Factors that influence the delivery mode and its success

A. **Context of delivery and implementation:** A thorough investigation of studies on delivery methods reveals that the success of any of the above listed delivery methods is dependent on the context, the design and implementation of the activities.

B. **A broader participation:** With more students going for higher education, the teaching and learning landscape has also changed. A widened or diverse participation also makes it imperative for the teaching faculty to accommodate diversity in their pedagogy. Drummond et al. (1998) have hinted at the inability of the academia in adopting new approaches to teaching.

C. **Stage of delivery:** It is also important to impart the skills at the right stage and through the right pathway. Inner motivation and an awareness of the skills that learners have, play an important role in the success of any learning programme.

D. **Support provided:** Research suggests that a successful implementation may require a combination of different methods and a focus on providing appropriate support to both instructors and learners. Technology, for example, can be used to develop transferableskills through online collaboration platforms or virtual simulations. However, the quality of technology and support provided to students would play a key role here.

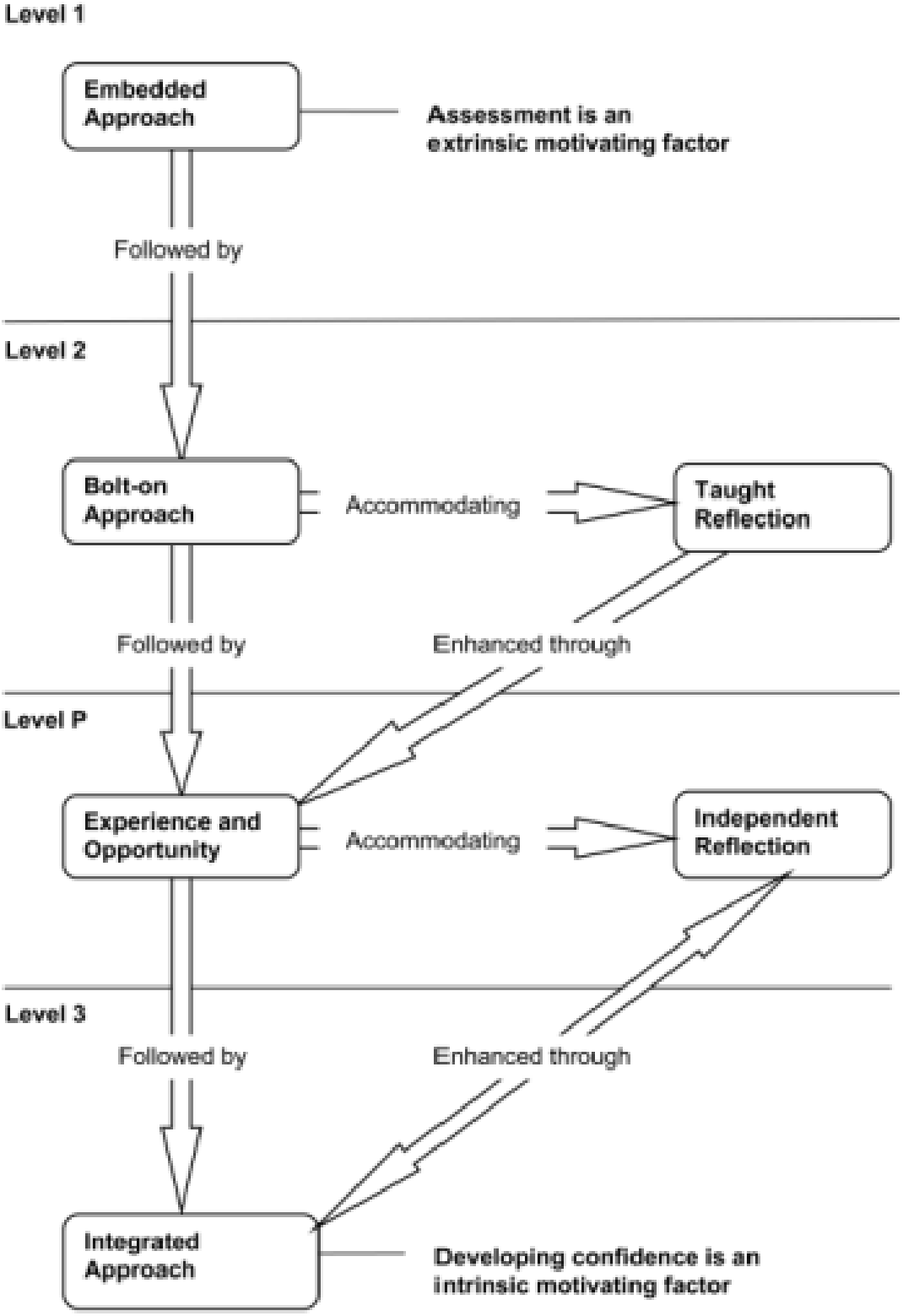
E. **Resource availability:** Some delivery methods are more resource-intensive than others. The availability of resources is a key deciding factor when offering transferableskill training as a stand-alone course against embedding or integrating into the core discipline. As a result, the latter are more preferred by education providers than the former.

Chadha and Nicholls (2006), argue that all three approaches are required for students to develop these skills (Figure 10). Therefore, a model with a layered approach was suggested that proposed incorporating an embedded approach at level one, bolt-on at level two and integrated at level three.

The different approaches at the three levels can be ascribed to different learning abilities and awareness of the learners, and the outcomes appreciated, when at various stages of learning. In the initial stages, the students would focus more on acquiring the core subject knowledge rather than developing these skills. An implicit delivery would work better here.

As the learners proceed to the higher stages and are closer to working in the industry, they are also more self-aware of their skills. At this point, the researchers recommend using the integrated approach where the skills are imparted externally.

Figure 10: A model for developing transferable skills



Source: A curriculum model for transferable skills development, Engineering Education, 1:1, 19-24, DOI: 10.11120/ened.2006.01010019

Research suggests that even competent individuals can fail to transfer skills from one context to another (Saks et al. 2014). This could be due to a lack of willingness and motivation to use the skills in a new work setting. Other factors that could contribute to the inability include work conditions, the attitude of other employees and organisational structure that hinders the skill transfer process.

A successful transfer of skills is an active process accomplished through the motivation of the workforce to adapt it to the new situation (Hinrichs 2014; Bransford et al. 2004; Baldwin and Ford 1988; Ford and Weissbein, 1997). There's a need to foster skill transfer through educational programmes to enhance the employability of graduates (Brown et al. 2003; Holmes 2013; Kirves et al. 2014; Tymon 2013).

Measuring transferable skills

Having recognised the importance of transferable skills, and how to deliver these skills, several frameworks/programmes to assess learners on these skills were proposed as listed below:

A. The Partnership for 21st Century Skills (P21) Framework identifies key transferable skills. These include skills such as critical thinking, innovation, communication and creativity. It provides a rubric for assessing these skills at various levels of proficiency.
B. The Association of American Colleges and Universities (AAC&U) VALUE Rubrics. The AAC&U provides a set of metrics for assessing these skills.
C. The Organisation for Economic Cooperation and Development (OECD) has developed the Programme for International Student Assessment (PISA), which includes assessments of students' performance in transferable skills such as problem-solving and critical thinking. PISA assessments have been used in many countries to measure students' transferable skills.
D. The Australian government has developed the Core Skills for Work Developmental Framework, which includes a set of indicators for measuring students' performance in transferable skills such as communication, teamwork and problem-solving.
E. The UK government has developed the Skills Builder Framework, which includes a set of assessments for measuring students' performance in transferable skills such as communication, teamwork and problem-solving.
F. A study by the University of Melbourne developed a framework for assessing students' performance in transferable skills such as critical thinking, problem-solving and communication. The framework includes rubrics for each skill, which allow for the assessment of students' performance in specific aspects of each skill.

Overall, these studies suggest that it is possible to measure transferable skills in learners using a variety of assessments and frameworks. The development of such assessments and frameworks can help educators to better understand students' skills and to design more effective teaching and learning strategies for developing those skills. These frameworks serve as a starting point for assessing students on transferable skills and have already been adopted by many educational institutes and employers.

Conclusions

Literature suggests that there is a need to develop transferable skills amongst the young potential workers as a tool to enhance their prospects of employability. It also indicates that the motivation to develop these skills plays an important role to an individual which in turn is influenced by factors both internal and external.

While there's a wealth of research suggesting that these skills can be developed in learners through targeted instruction or intervention programmes and practice, no study was found that conclusively said that transferable skills cannot be developed through intervention programmes.

Three principal approaches that have been suggested by researchers are, namely, the embedded, stand-alone and integrated approaches. Though all approaches have found use in different contexts, researchers largely bend in favour of integrating these skills to the core discipline. Enabling that through real-life problems and contextualisation allows for an equal emphasis on developing these skills. An explicit delivery of these skills in the integrating approach ensures that the learners are aware of the value of these courses.

It was also found that currently there are no standards or qualifications for imparting these skills in New Zealand. The programmes to assist the learners with these skills are broadly defined, with a unit standard approach and defined outcomes. In the wake of widening income gap between Māori population and other ethnicities in New Zealand (as revealed by Statistics NZ data), it becomes imperative that employability skills are made a part of the curriculum. Measures need to be taken to motivate learners to participation. Also, these programmes need to be adequately supported by providing resources – which includes human resource and technology.

Many frameworks have been developed and proposed world-wide to assess students/ learners on transferable skills. Taking cues from these frameworks developed in other countries, New Zealand needs to come up with their own metric for students' assessment of these skills. It is, however, important to keep in mind the suitability of these frameworks in various contexts, which is subject to the needs and goals of educational institutes and professional settings when selecting a framework. The metric should be developed in agreement with the cultural context while also considering the changing landscape for job seekers in New Zealand.

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